Modeling of Power Systems for Marines

Potential Future Electric Power Consumers

Computer
Helmet Mounted Display
GPS with integrated navigation
Radio (voice, data, image, video)
Video camera
Color hand-held flat panel display
NBC and laser warning systems
Health status monitor
Automatic IFF system
Laser range finder/designator
Digital compass
Thermal weapon sight
Wireless weapon video interface

and more…..

Objective

Development of a tool for evaluating the multitude of operational trade-offs associated with electric power utilization and availability for the future (2020) dismounted Marine

Approach

Expand Virtual Test Bed at USC to model the various combinations of electrical loads, power sources and operational duty cycles (using both current and projected technologies) for the dismounted marine as an integrated system

Payoff

A systems optimization tool for planning S&T/RDT&E and acquisition investments

Progress

Modeling results are clearly demonstrating the benefits of hybrid energy conversion (fuel cell and electrochemical storage) systems to optimize both power and efficiency

Principal Investigator

University of South Carolina